



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/633,251	08/01/2003	Colin Richard Wilson	124592 (GEGRC 0102 PA)	4795
6147	7590	03/21/2005	EXAMINER	
GENERAL ELECTRIC COMPANY GLOBAL RESEARCH PATENT DOCKET RM. BLDG. K1-4A59 NISKAYUNA, NY 12309			THOMAS, COURTNEY D	
			ART UNIT	PAPER NUMBER
			2882	

DATE MAILED: 03/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/633,251

Applicant(s)

WILSON ET AL.

Examiner

Courtney Thomas

Art Unit

2882

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 February 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 17-20 is/are allowed.
- 6) ☒ Claim(s) 1,3-6,9 and 12-14 is/are rejected.
- 7) ☒ Claim(s) 2,7,8,10,11,15 and 16 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Terminal Disclaimer

1. The terminal disclaimer filed on 02/17/05 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of any patent granted on Application Number 10/248,153 has been reviewed and is NOT accepted.
2. An attorney or agent, not of record, is not authorized to sign a terminal disclaimer in the capacity as an attorney or agent acting in a representative capacity as provided by 37 CFR 1.34 (a). See 37 CFR 1.321(b) and/or (c).

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1, 3, 4, 5, 6, 9 and 12-14 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-20 of copending Application No. 10/248,153.
3. Examiner notes herein, prior to a discussion of the conflicting claims, that **co-pending application (10/248,153)** does not differentiate significantly from **instant application (10/633,251)**. In particular, claims 1, 2, 5-12 and 17 of co-pending application ('153), taken as a

Art Unit: 2882

whole, substantially recite the claimed subject matter of instant application ('251) embodied in independent claim 1. Co-pending application ('153) is considered to be a narrower recitation of an X-ray source, analogous to the claimed flat panel X-ray tube assembly of instant application ('251). The narrow recitation of co-pending application ('153) anticipates the broad recitation of the claimed X-ray tube of instant application ('251). Examiner further notes that both applications use differing terminology to describe similar device elements.

4. Although the conflicting claims are not identical, they are not patentably distinct from each other because **copending Application No. 10/248,153** claims in independent claim 1 and dependent claims 2, and 5-12, an X-ray source comprising:

5. **a) an electron source** (instant application ('251) uses the term: cathode assembly - which to those of ordinary skill in the X-ray art, comprises elements for electron beam generation, such as an electron source);

6. **b) an X-ray source target** (instant application ('251) uses the term: anode substrate - a broader recitation; recognizable to those in the X-ray art as analogous elements - both being used for the generation of X-ray radiation subsequent bombardment with an electron beam);

7. **c) wherein the X-ray target source** comprises a support structure coated with a **high density material film** (instant application ('251) uses the term: first target element - and further defines the first target element as comprising a thin film (claim 3) - to those of ordinary skill in the X-ray art it would be recognized that the anode substrate is also the support structure, having a thin film deposited thereon - usually for strengthening the integrity of the anode substrate by providing thermal dissipation);

Art Unit: 2882

8. d) wherein the X-ray source target comprises a plurality of **notches** (instant application ('251) uses the term: target wells - Examiner notes that the notches of co-pending application ('153) and the target wells instant application ('251) are claimed to have structural similarity - (i.e. claim 8 - co-pending application ('153); claim 1, instant application ('251));

9. e) wherein each of the plurality of notches (target wells) has an inclined surface; the high density film (first target element) is located on a side of each notch (well) and the individual electron beam in each of the notches (wells) is directed upon the density material on the side surface;

10. f) wherein the electron source (cathode assembly) comprises a plurality of electron emitters, each emitter providing a respective one of individual electron beams.

11. Based on the above, Examiner concludes the following:

12. Claims 1 and 9 of instant application (251) are anticipated by co-pending application ('153) claims 1-3, 5, 8 and 12; Dependent claims 3-6 and 12-14 of instant application (251) are anticipated by co-pending application ('153) claims 2-5.

13. Examiner has regarded instant application (251) claims 6 and 13 as being anticipated by co-pending application ('153) claims 1-3, 5, 8 and 12 as the incline surface coated with the high density film material is in thermal contact with the film material.

14. This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Allowable Subject Matter

15. Claims 2, 7, 8, 10, 11, 15 and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

16. **As per claim 2**, the examiner found no reference in the prior art that disclosed or made obvious a flat panel X-ray tube assembly further comprising: a) a second angled side surface formed in each of said plurality of target wells, each of said second angled side surfaces opposing one of said first angled side surfaces, each of said second angled side surfaces positioned in an acute angle relative to said substrate upper surface; and b) a plurality of second target elements applied to each said second side surfaces, said plurality of second target elements generating X-rays in a direction perpendicular to said plurality of emitter elements in response to electrons received from one of said plurality of emitter elements.

17. **As per claim 10**, the examiner found no reference in the prior art that disclosed or made obvious a flat panel X-ray tube assembly further comprising: a) a plurality of second angled side surfaces formed in said substrate, each of said second angled side surfaces facing one of said first angled side surfaces, each of said second angled side surfaces angled relative to said plurality of electron beams such that one of said plurality of electron beams approaches one of said second angled side surfaces at an acute angle; and b) a plurality of second target elements applied to each of said plurality of second angled side surfaces, each of said plurality of second target elements positioned parallel with one of said plurality of second angled surfaces, each of said plurality of second target elements generating X-rays in a direction parallel to one of said plurality of electron beams.

Art Unit: 2882

18. **As per claim 11**, the examiner found no reference in the prior art that disclosed or made obvious a flat panel X-ray tube assembly wherein one of said plurality of electron beams approaches one of said first angled side surfaces at an angle less than 45 degrees.

19. **As per claim 7**, the examiner found no reference in the prior art that disclosed or made obvious a flat panel X-ray tube assembly wherein said plurality of target wells comprise a line of target wells.

20. **As per claim 8**, the examiner found no reference in the prior art that disclosed or made obvious a flat panel X-ray tube assembly wherein said plurality of target wells comprise a two dimensional matrix of target wells.

21. **As per claim 15**, the examiner found no reference in the prior art that disclosed or made obvious a flat panel X-ray tube assembly wherein said plurality of first target elements comprise a line of target elements.

22. **As per claim 16**, the examiner found no reference in the prior art that disclosed or made obvious a flat panel X-ray tube assembly wherein said first target elements comprise a two dimensional matrix of target elements.

23. Claims 17-20 are allowed.

24. The following is a statement of reasons for the indication of allowable subject matter:

25. **As per claim 17 and dependent claims 18-20**, the examiner found no reference in the prior art that disclosed or made obvious a method of generating a plurality of X-ray beams having a plurality of focal spots comprising the steps of: **a)** impacting one of a plurality of electron beams into one of a plurality of first target elements, each of the first target elements mounted on a first angled side surface of a substrate, **b)** striking the first target element with the

electron beam at an acute angle and c) releasing X-rays from each of the first target elements in a direction parallel to one of the plurality of electron beams, as recited in independent claim 17.

Response to Arguments

26. Applicant's arguments filed 02/17/05 have been fully considered but they are not persuasive. As noted above, the terminal disclaimer filed 02/17/05 has been disapproved. Hence, the arguments provided therein are insufficient to overcome the merits of the rejection.

Conclusion

27. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

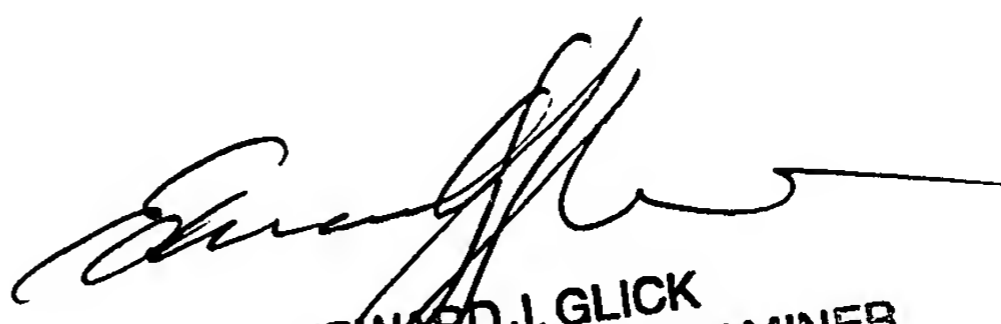
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Courtney Thomas whose telephone number is (571) 272-2496. The examiner can normally be reached on M - F (9 am - 5 pm).

Art Unit: 2882

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (571) 272 2490. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Courtney Thomas *CT*
Examiner
Art Unit 2882


EDWARD J. GLICK
SUPERVISORY PATENT EXAMINER